

WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The warmth of the month was the one outstanding feature of the weather. Precipitation in several localities was about double the normal. All in all it was a warm and moist month.—A. J. H.

CYCLONES AND ANTICYCLONES

W. P. DAY

Low-pressure areas were considerably more numerous than in January, and the more important depressions numbered 22. A majority of these were of Pacific origin or secondary developments over the Rocky Mountain region in conjunction with the Pacific types.

Twelve high-pressure areas were plotted, but only two were important as cold waves over any considerable area. These cold-air masses spread southeastward from Canada near the end of the first and second decades; otherwise temperatures were generally above the normal.

THE WEATHER ELEMENTS

By P. C. DAY, In Charge of Division

PRESSURE AND WINDS

The month was notably stormy on the Pacific coast, low pressure prevailing during much of the first week and again from the 12th to 25th, when precipitation occurred almost daily. It was heavy to excessive on a number of dates, particularly in southern California where from about the 14th to 16th the falls were among or actually were the greatest of record, causing much loss and damage by washing and flooding of roads and fields, destruction of bridges, etc. Considerable delay to traffic occurred due to impassable roads, and entire communities were without means of surface communication for varying periods. On account of the well-soaked condition of the soil prior to the occurrence of these heavy rains the run-off was heavy and all reservoirs were filled and ample supplies of water are assured.

Over the remainder of the country pressure was frequently low and there was considerable cyclonic activity, though this was confined mainly to the latter half. About the 13th low pressure developed in the Southwest and by the middle of the month stormy conditions had extended to the lower Lake region and precipitation had covered a wide area from the Rocky Mountains eastward, the rains being heavy to excessive over much of the Gulf region, with considerable snow from the middle Missouri Valley eastward to the Great Lakes and some sleet in southern New England. This storm moved into the St. Lawrence Valley during the 15th with generally lessened importance.

An important cyclone moved into the middle Plains by the morning of the 17th and by the following morning had advanced to the Middle Gulf States causing general precipitation over most central and southern districts from the Great Plains eastward, with local heavy rains in portions of the lower Mississippi Valley, New Orleans receiving nearly 7 inches in the 24 hours ending 8 a. m. of the 18th with an additional inch during the following day. This barometric depression gathered strength to the southward and on the morning of the 19th was central near the Georgia coast and heavy precipitation had occurred over portions of the east Gulf and South

Atlantic States while lighter amounts had fallen over the remaining Atlantic coast area, the precipitation changing to heavy snow or sleet in the more northern localities. This storm moved northeastward somewhat off the coast during the following 48 hours, causing rain, sleet, or snow from the Ohio Valley eastward and northeastward, the precipitation changing to heavy sleet along the North Atlantic coast and to moderately heavy to heavy snow over the near-by interior districts. High winds and tides occurred during this time particularly along the New Jersey coast, where much damage resulted, while in some districts back from the coast heavy glaze greatly damaged overhead wire systems.

A slight barometric depression central in the lower Mississippi Valley on the morning of the 23d, moved eastward to the Carolina coast during the following 24 hours and was accompanied by some heavy rains over the east Gulf and South Atlantic States. Another slight depression, central over the Ohio Valley on the morning of the 25th, developed considerably by the following morning, when it appeared as two storms, one central over Lake Ontario and the other covering southern New England. These combined later and moved toward the Canadian Maritime Provinces. Precipitation from this storm covered most districts from the Mississippi River eastward, considerable snow occurred over the Great Lakes region and to the eastward, becoming heavy and wet toward the coast and causing some damage to wire systems. At the close of the month a cyclone of considerable importance had moved from the Southern Plateau to southern Texas, with precipitation rather general, but light, from the Rocky Mountains and western Great Plains south-eastward to near the west Gulf coast, snow falling over the northern half of the area.

Anticyclones were mainly unimportant though on the 9th one of marked strength had entered the upper Missouri Valley and during the following few days moved southeastward to the Atlantic coast attended by generally fair and moderately cold weather over most districts from the Rocky Mountains eastward. Another of considerably smaller proportions entered Manitoba and the Dakotas on the morning of the 12th and moving eastward along the northern border during the following day or two brought some sharp temperature falls, particularly in the St. Lawrence Valley. Another anticyclone that gave promise of an extensive lowering of temperature over the Great Plains and central valleys and to the eastward, entered the Canadian Northwest and upper Missouri Valley on the 17th, with temperatures from 20° to 30° below zero near the center. It moved into the middle Missouri Valley during the following 24 hours and brought sharp temperature changes over the Great Plains and west Gulf region, the lowest temperatures of the month occurring over the States from Arkansas and Louisiana eastward on that and the following day or two as the effects of the anticyclone slowly extended eastward over the Southern States. From its main center over the middle Missouri Valley on the 18th, this anticyclone moved rapidly to the Northeast and on the 19th it had passed beyond the Great Lakes and to the southeastward of Hudson Bay. The sharp falls in temperature expected from this HIGH, which materialized in the far southern and northern districts, did not occur over the Central States from the Mississippi Valley eastward due to the development of cloudy, rainy conditions in that area.

The average pressure was nearly everywhere less than that normal for February, though in the Great Plains

and Southwest the variations from normal were small and in some localities the pressure was slightly higher than the normal, and like conditions existed over north-eastern New England, the eastern Canadian Provinces, and in southern Florida. The average pressure was distinctly low over the far Northwest and in the southern Appalachian region.

Compared with January, 1927, the pressure averages were much lower in all parts of the country including Canada, the changes being particularly large along the North Pacific coast where usually February pressures are slightly higher than those for January.

The prevailing winds were mainly from southerly points over the Gulf and South Atlantic States, and over much of the Plateau and Pacific coast sections. Elsewhere they varied greatly.

High winds frequently prevailed over the Pacific coast, and occurred locally along the Atlantic seaboard, particularly along the Jersey coast on the 19th and 20th, when much damage resulted to buildings near the coast by undermining, etc. Over the interior there were frequent local storms, and damaging tornadoes occurred in northern Louisiana and near-by portions of Mississippi with a total loss of more than 40 lives and extensive property damage. The details concerning these and other storms appear at the end of this section.

TEMPERATURE

February as a whole was an abnormally warm month; practically every station in the United States and all reporting in Canada had monthly means above normal. In nearly all parts from the Mississippi Valley eastward, including also the West Gulf States, the averages were among the highest of record for February, while over many of the Southern States it was actually the warmest February in the period of record. Several stations in Alabama and portions of near-by States reported it as the warmest winter month in more than 50 years. As much of the country was distinctly warm in January, particularly in the South, and this area was also warmer than normal during December, a number of the Gulf States have had nearly, and probably in a few instances quite, the warmest winter of record. Chart III shows the extent of the temperature excess for the month.

The temperatures during the month were remarkably uniform for a winter month, particularly over the southern sections, Key West, Fla., having but one day with temperature below normal, while in other portions of the Gulf and South Atlantic States there were frequently not more than a few such days.

The warmest periods were the 3d and 4th in the East Gulf and South Atlantic States; the 16th to 18th in the Ohio Valley and Middle Atlantic States; the 20th to 24th along the northern border from Montana to New England, and at about the same time over much of the country from the middle and southern Plains west to the Pacific coast. In a few sections of the South Atlantic and East Gulf States the maximum temperatures of the month were the highest ever observed in February.

The lowest temperature, 48° below zero, was observed at an exposed locality in Wyoming, but temperatures of 25° to 35° below zero were observed at many points along the northern border and locally in the western mountains. Freezing temperatures or lower were recorded somewhere in all the States except Florida, where the lowest observed

was 33°. At Norfolk, Va., the month was remarkable in that no temperature as low as freezing was observed, the first February occurrence of the sort in the 56 years of officially recorded observations.

PRECIPITATION

Considering the country as a whole the precipitation was above normal over more than half the States and in a few instances the amounts were far above, and locally the heaviest of record for February. This was notably the case in California, where the average precipitation was more than twice the normal, and locally in the south the falls were among the greatest of record. In the vicinity of San Diego precipitation was unusually heavy about the 10th to 16th, resulting in severe floods the damage or loss of many bridges, and the washing of fields and roads.

In the great central valleys the precipitation was very generally less than usual in February, and like conditions existed over most of the Atlantic Coast States.

SNOWFALL

Every State in the Union save Florida was visited by snow, though over much of the South the amounts were trifling and no important depths lay on the ground for an extended period, except over the more northern districts and in the mountain areas.

No widespread snow occurred on any single date, but there were considerable falls on the 5th and 6th from the upper Lakes westward to North Dakota and over the Northeastern States. About the 12th to 14th considerable snow fell over the northern districts, and some rather heavy falls occurred from Nebraska and near-by areas eastward to Michigan. There was some heavy snow, sleet, or glaze on the 19th and 20th over the Middle Atlantic States, causing much damage to overhead wires in portions of New Jersey and near-by areas. About the 26th-28th there was considerable snow over the eastern slopes of the Rocky Mountains including the adjoining plains from Nebraska southward to Oklahoma and northern Texas.

In the western mountain districts, snowfall was mainly above normal, particularly in the central and southern sections. Toward the north the falls were mainly somewhat less than normal.

At the close of the month the amount of stored snow in the high mountains was as a rule somewhat more satisfactory than for several years and the outlook for a sufficient supply of water for power and irrigation needs during the usual dry season was good.

RELATIVE HUMIDITY

The persistence of cloudy, rainy weather in many of the far Western States was reflected in the relative humidity which was far above normal in most of California and near-by States and generally above normal in other Western States save in Washington where there were some pronounced deficiencies.

Over practically all southern districts from Texas eastward and generally in the Ohio Valley and Atlantic Coast States relative humidity was uniformly above normal, but in the area between the Mississippi River and the Rocky Mountains varying conditions existed with a tendency to percentages below normal.